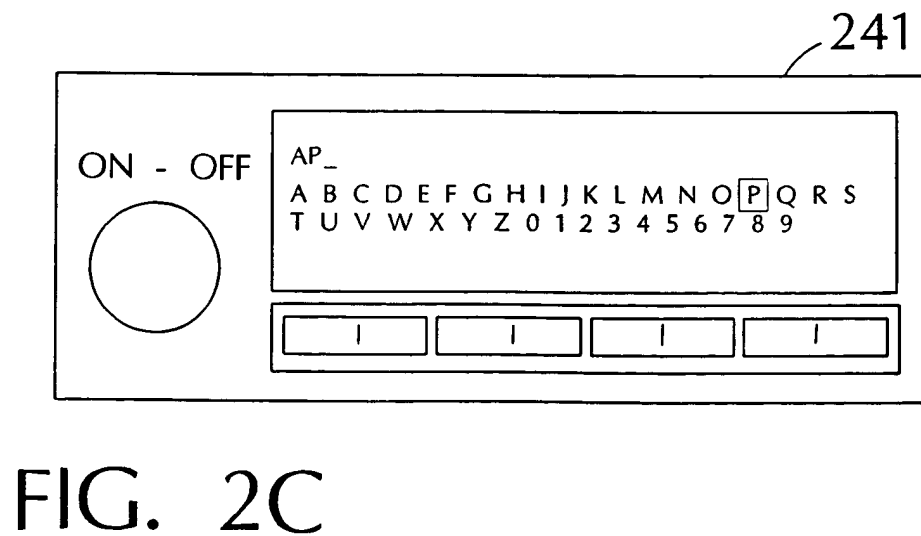
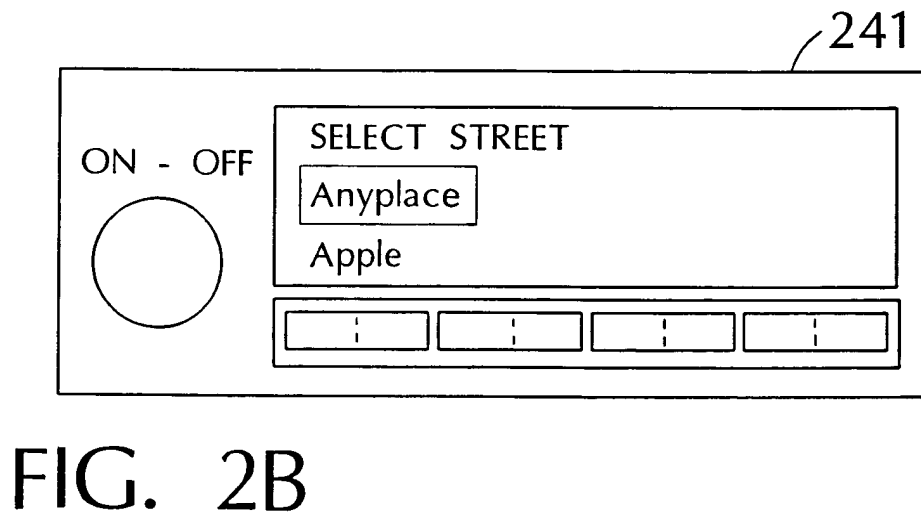
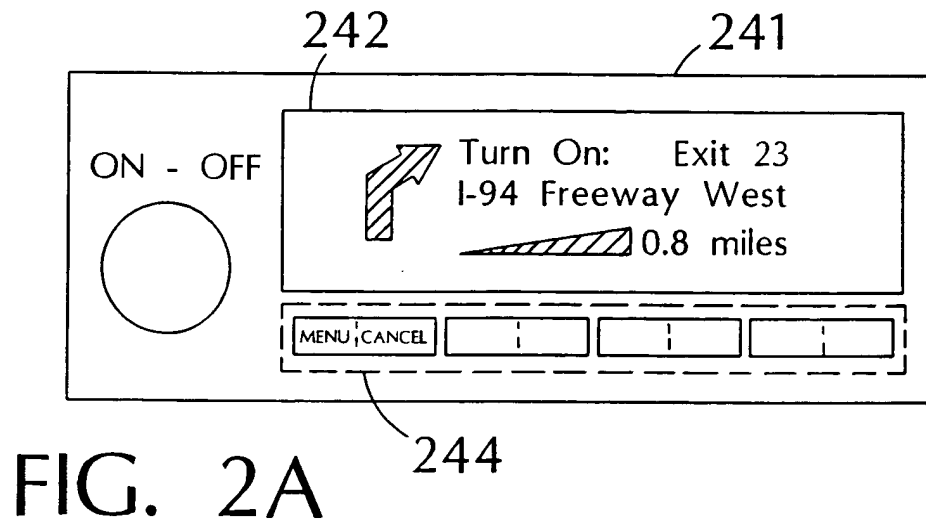


FIG. 2



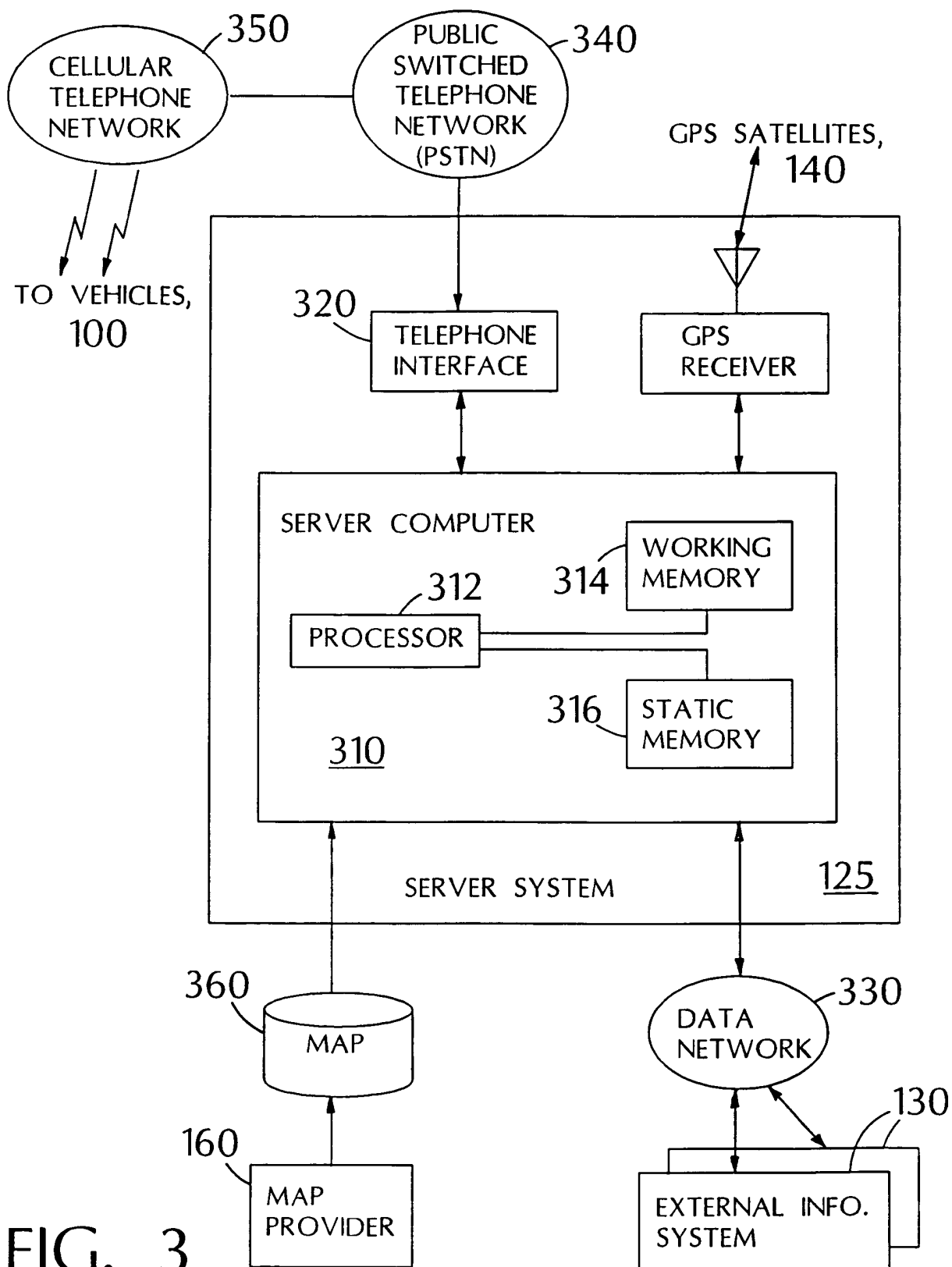


FIG. 3

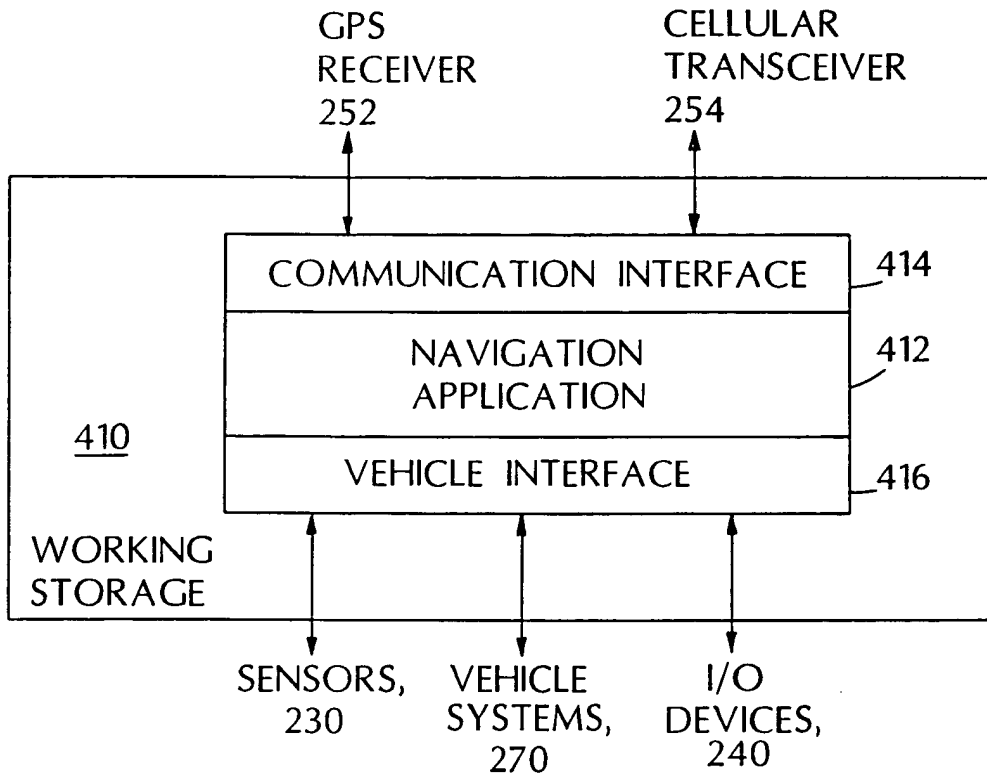


FIG. 4A

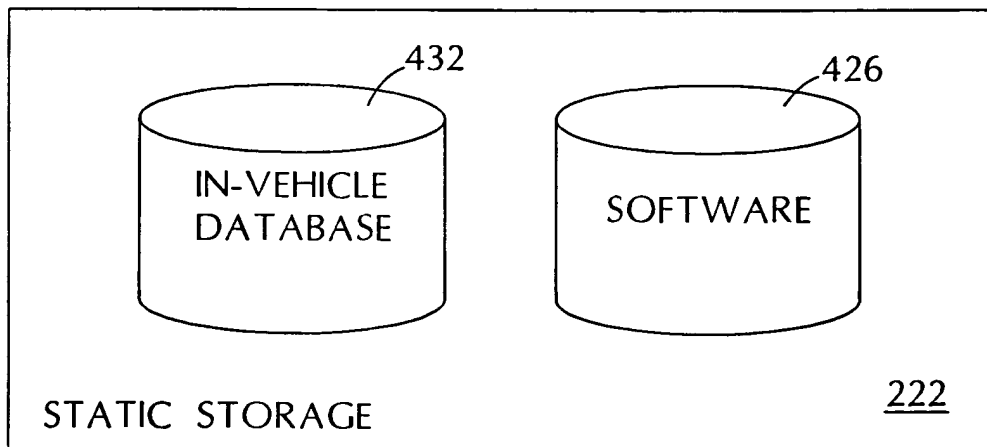


FIG. 4B

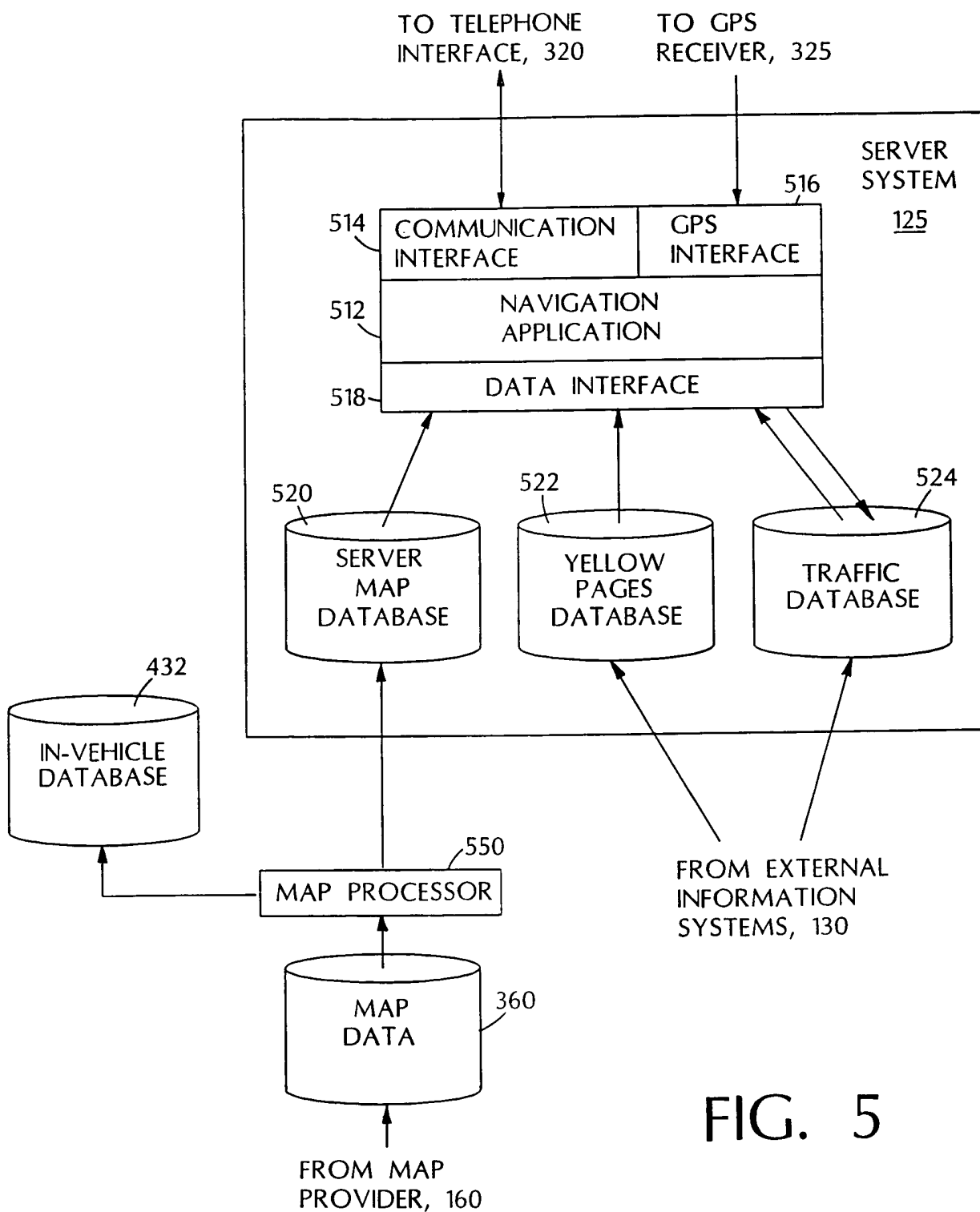


FIG. 5



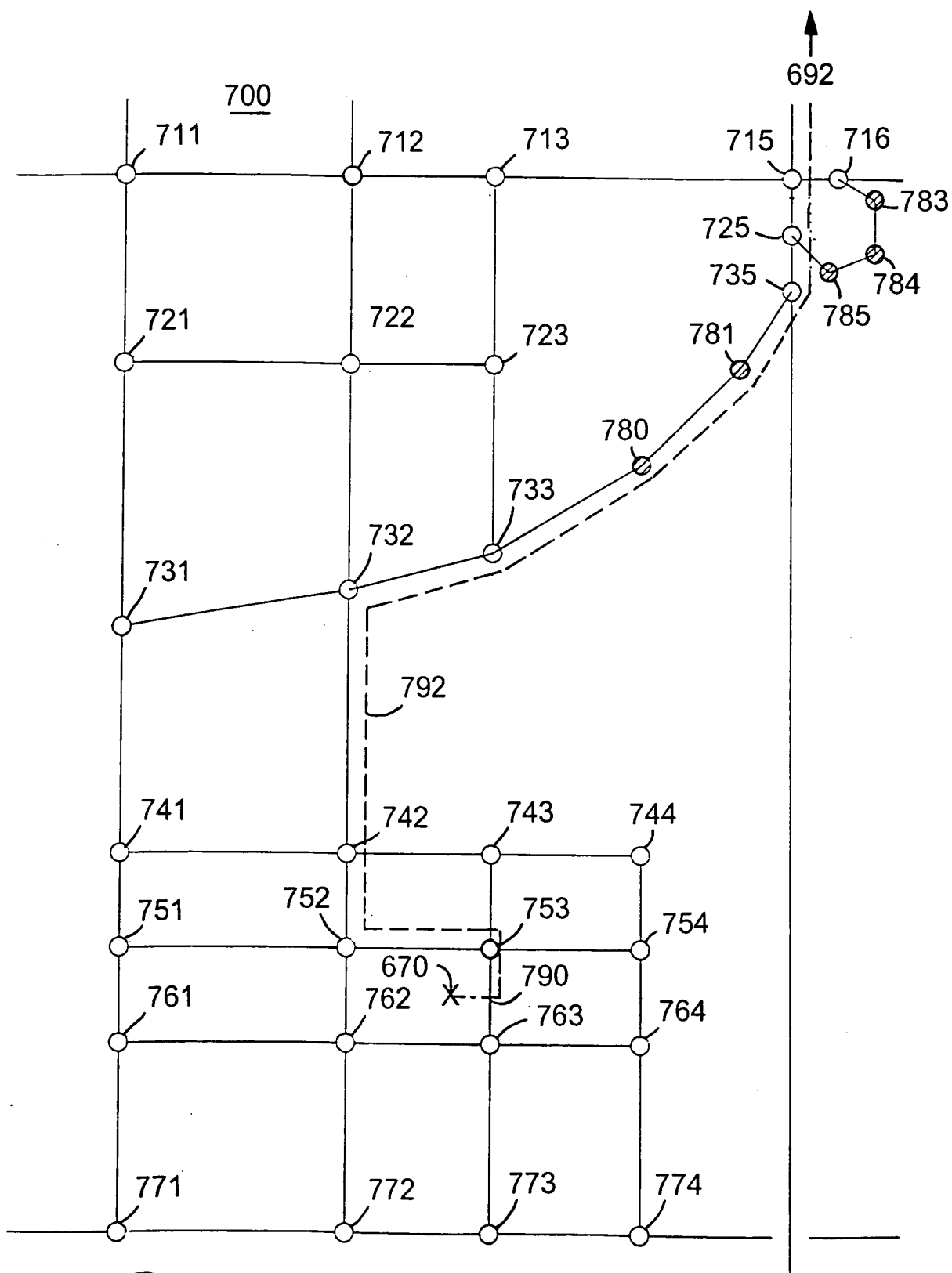
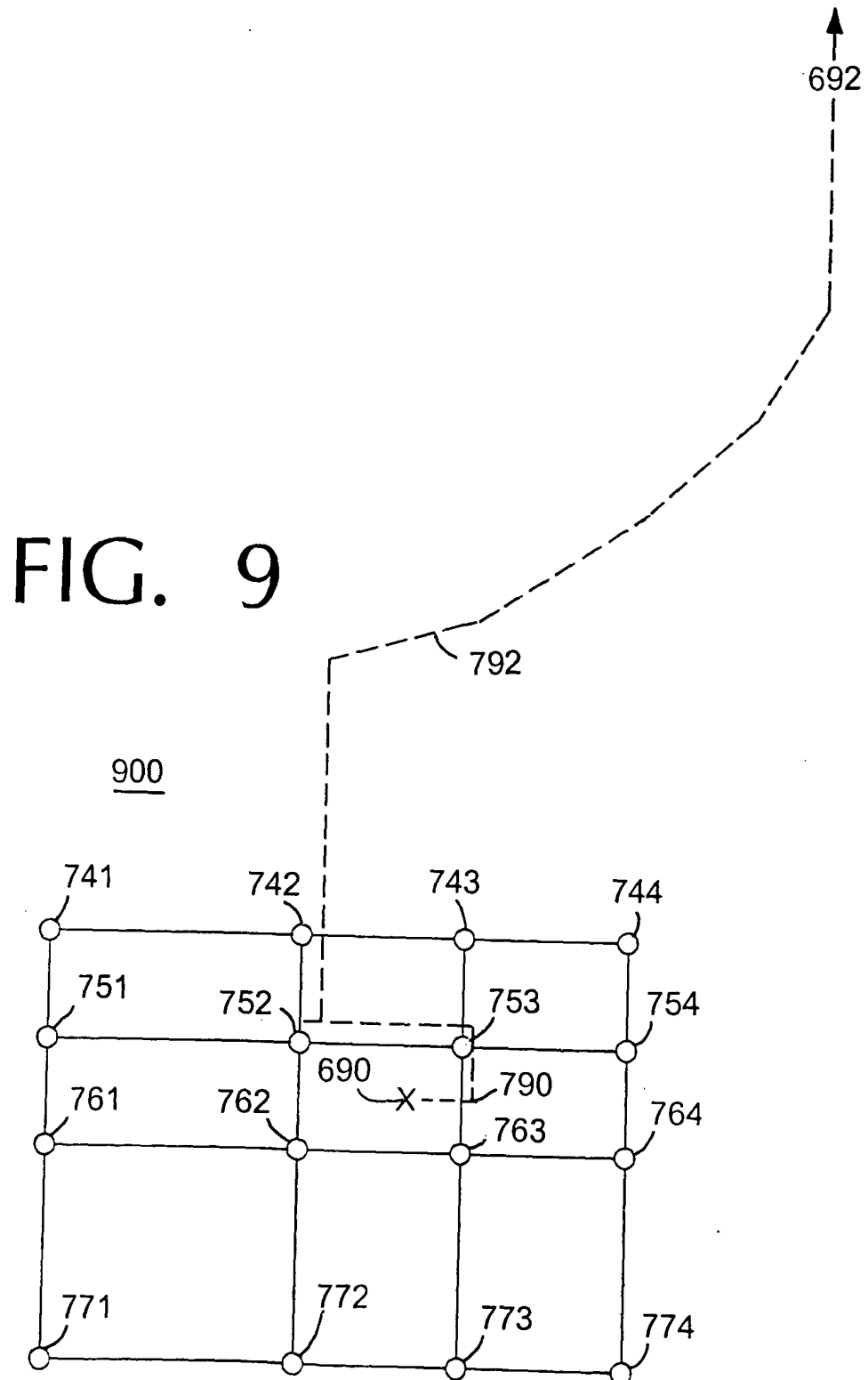


FIG. 7







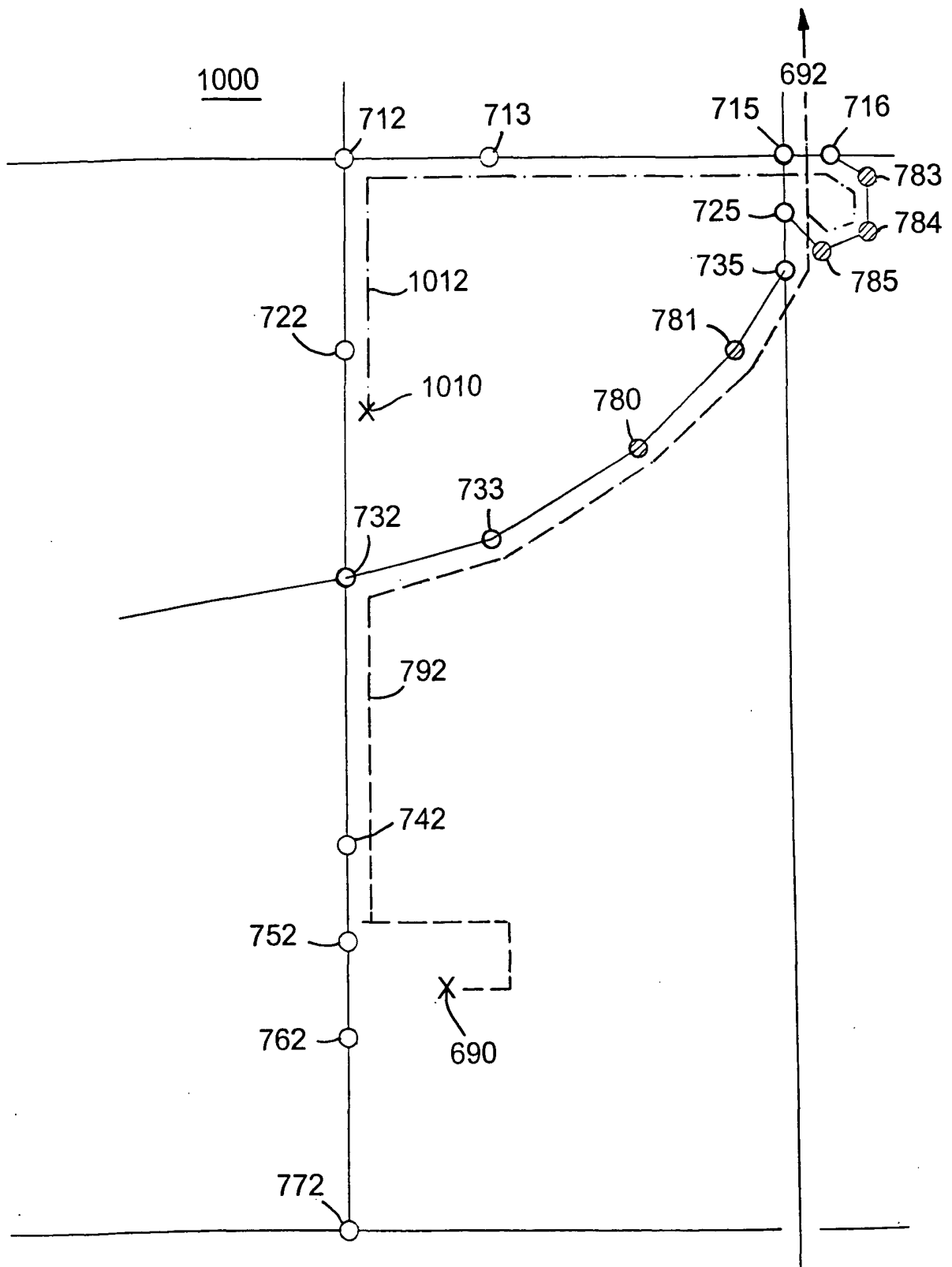


FIG. 10

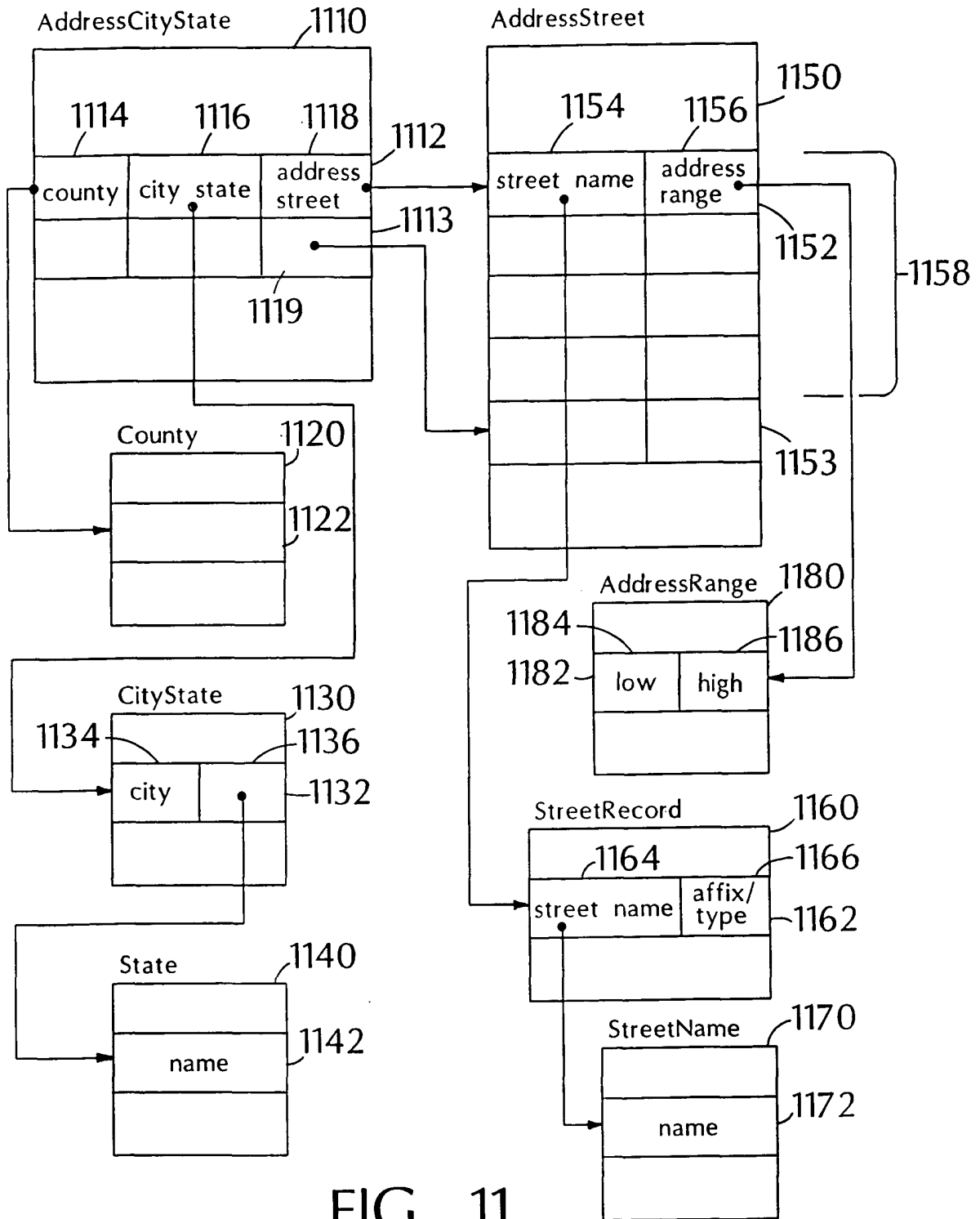


FIG. 11

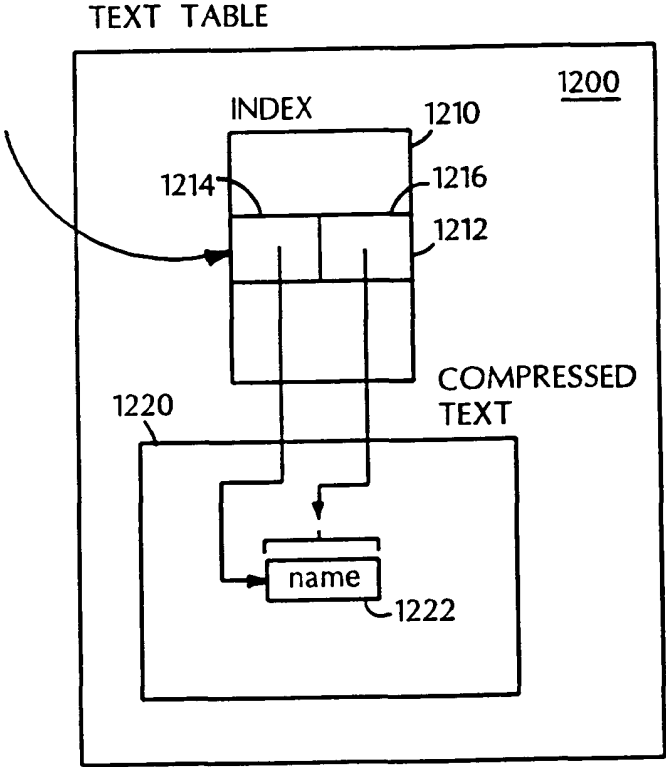


FIG. 12

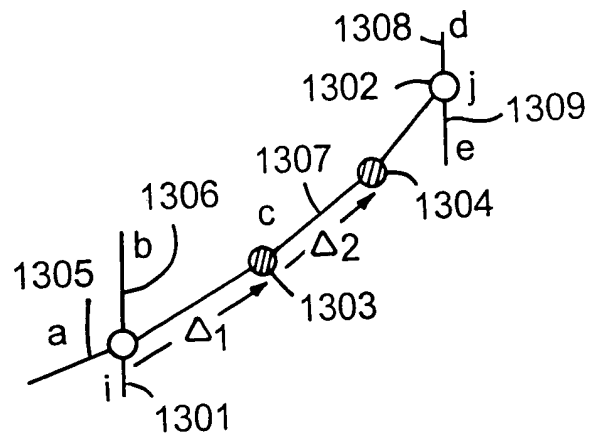
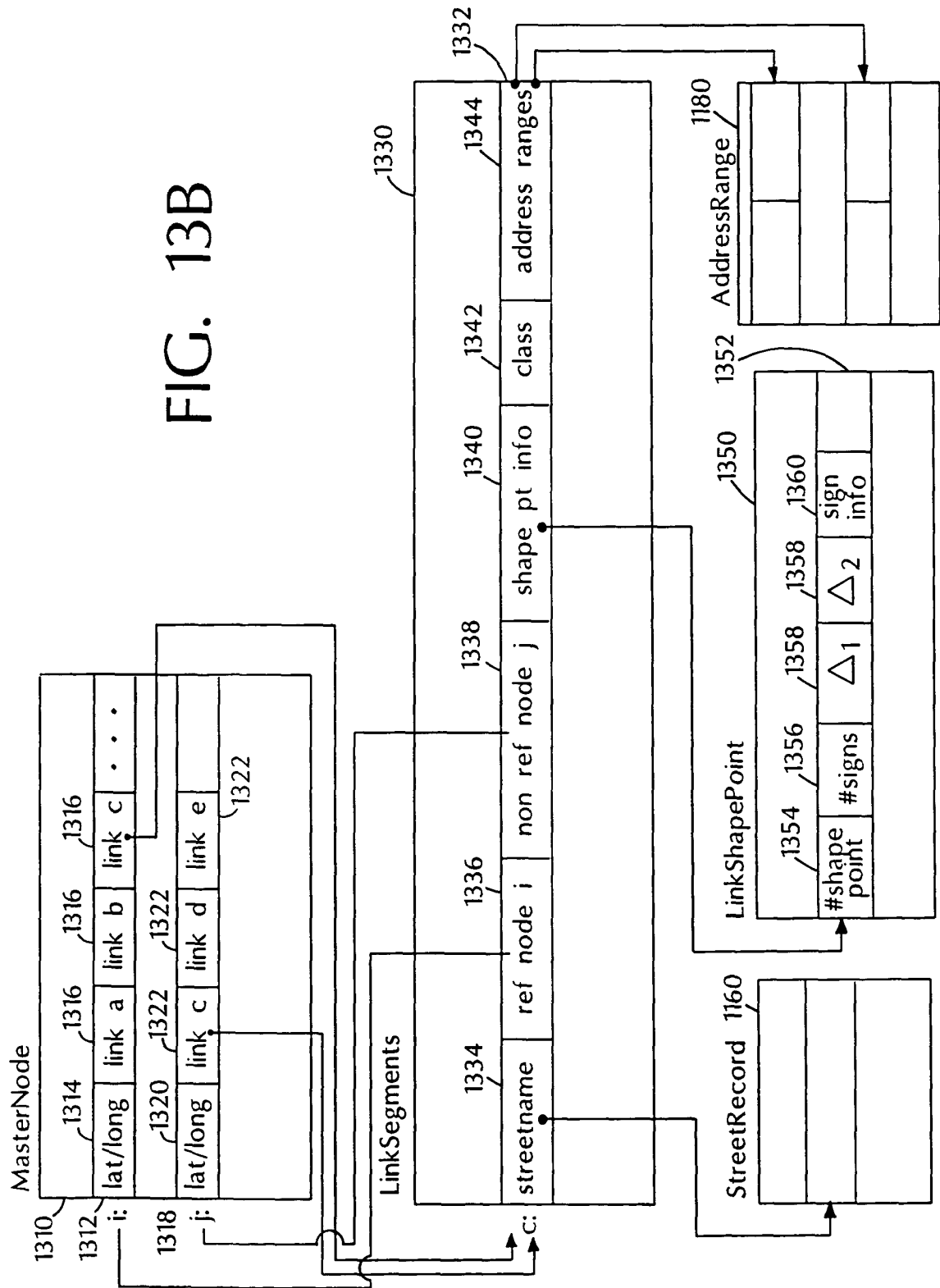
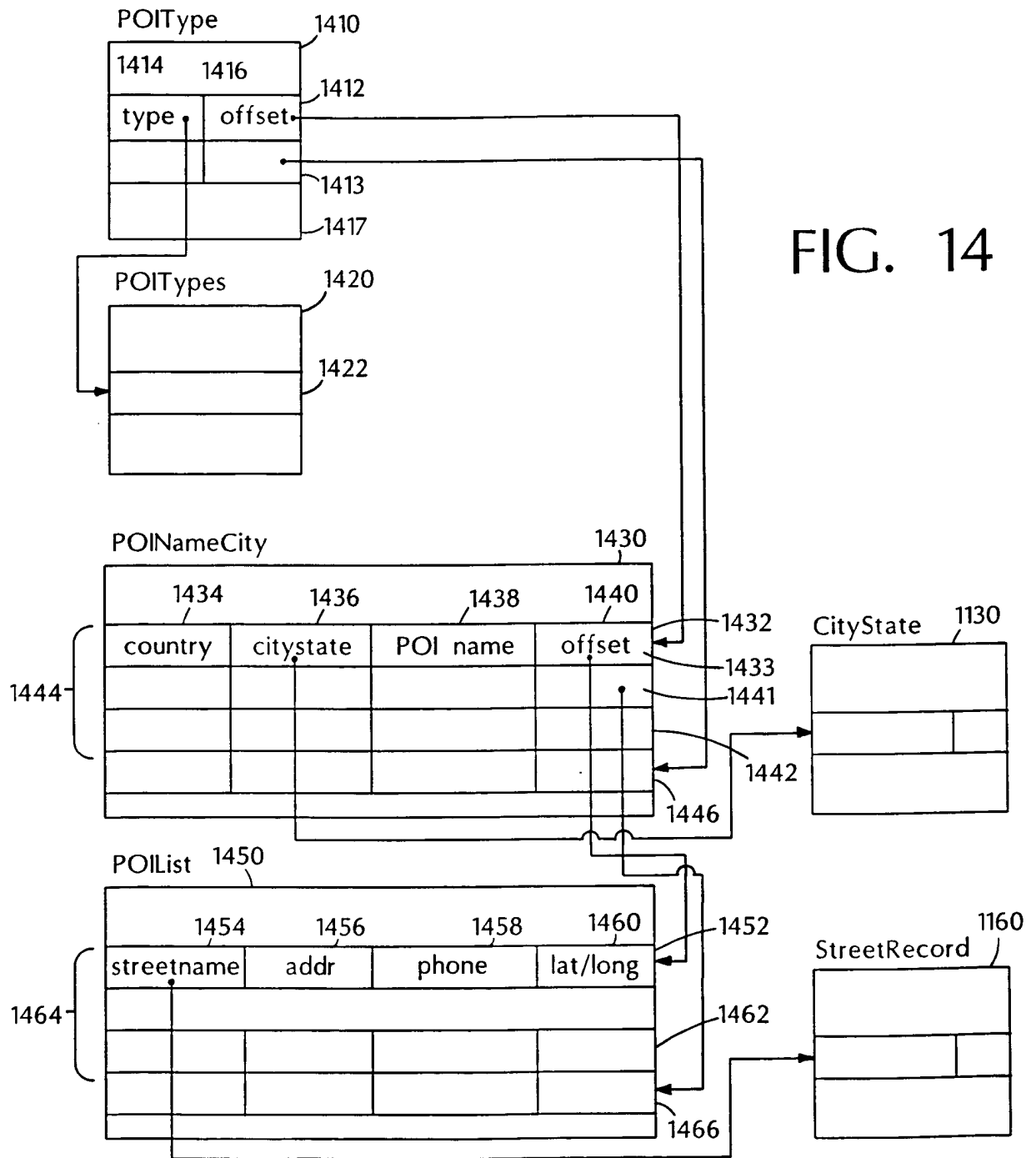


FIG. 13B







1501      **Plan Route (In-Vehicle):**

1502      Accept Destination Specification from Operator

1503      Determine Current Location Data

1504      Establish Communication Session with Server

1505      Send Destination Specification and Current Location Data to Server

1506      IF Destination Specification Requires Server Interaction THEN

1507          Accept Secondary Destination Specification Data from Server

1508          Accept Secondary Destination Specification from Operator

1509          Send Secondary Destination Specification to Server

1510      END IF

1511      Wait for Server Response

1512      Receive Planned Route, Spot Map, and Differential GPS Data from Server

1513      Close Communication Session with Server

FIG. 15A

1551      **Plan Route (Server):**

1552      Accept Communication Session with Vehicle

1553      Receive Destination Specification and Current Location Data from Vehicle

1554      Determine DGPS Correction Data

1555      Determine Vehicle Location

1556      IF Destination Specification Requires Further Operator Input THEN

1557          Determine Secondary Destination Specification Data

1558          Send Secondary Destination Specification Data to Vehicle

1559          Receive Secondary Destination Specification from Vehicle

1560      END IF

1561      Determine Planned Route to Specified Destination

1562      Determine Spot Map near Vehicle Location

1563      Send Planned Route, Spot Map, and DGPS Data to Vehicle

1564      Close Communication Session with Vehicle

**FIG. 15B**

1601       **Startup Maneuvers:**

1602       Initialize Estimated Location using Differential GPS Data

1603       WHILE Estimated Location is not at a Point of the Planned Route DO

1604             Track Estimated Location using (D)GPS Data

1605             Display Spot Map and Estimated Location on Display

1606       END WHILE

## FIG. 16

1801       **Replan Route:**

1802       Estimate Vehicle Location of Main Roads Network using

1803             Dead-Reconing Location

1804       Calculate Best Route to a Maneuver or Way Point on the Previous

1805             Planned Route

1806       Replace Planned Route with Newly Calculated Route

1807       GOTO Follow Route

## FIG. 18

```
1701   Follow Route:
1702   FOR Each Link on Planned Route DO
1703       At Initial Maneuver Initialize Off-Route Tolerance
1704       WHILE Vehicle Is Travelling to the Next Maneuver Point DO
1705           Increase Off-Route Tolerance
1706           Track Dead-Reckoning Location
1707           Track (D)GPS Location
1708           IF (Dead-Reckoning Location is more than Off-Route Tolerance
1709               from (D)GPS Location THEN
1710               GOTO Replan Route
1711           END IF
1712           IF Dead-Reckoning Location is within Maneuver
1713               Notification Window THEN
1714               Notify Operator of Next Maneuver
1715           END IF
1716           IF Dead-Reckoning Location is within Maneuver
1717               Detection Window THEN
1718               IF Next Maneuver is Detected THEN
1719                   Update Dead-Reckoning Location
1720                   Update DGPS Data
1721               END IF
1722           END IF
1723       UNTIL Maneuver was Detected OR
1724           Vehicle Leaves Maneuver Detection Window
1725   UNTIL Destination is Reached
```

**FIG. 17**

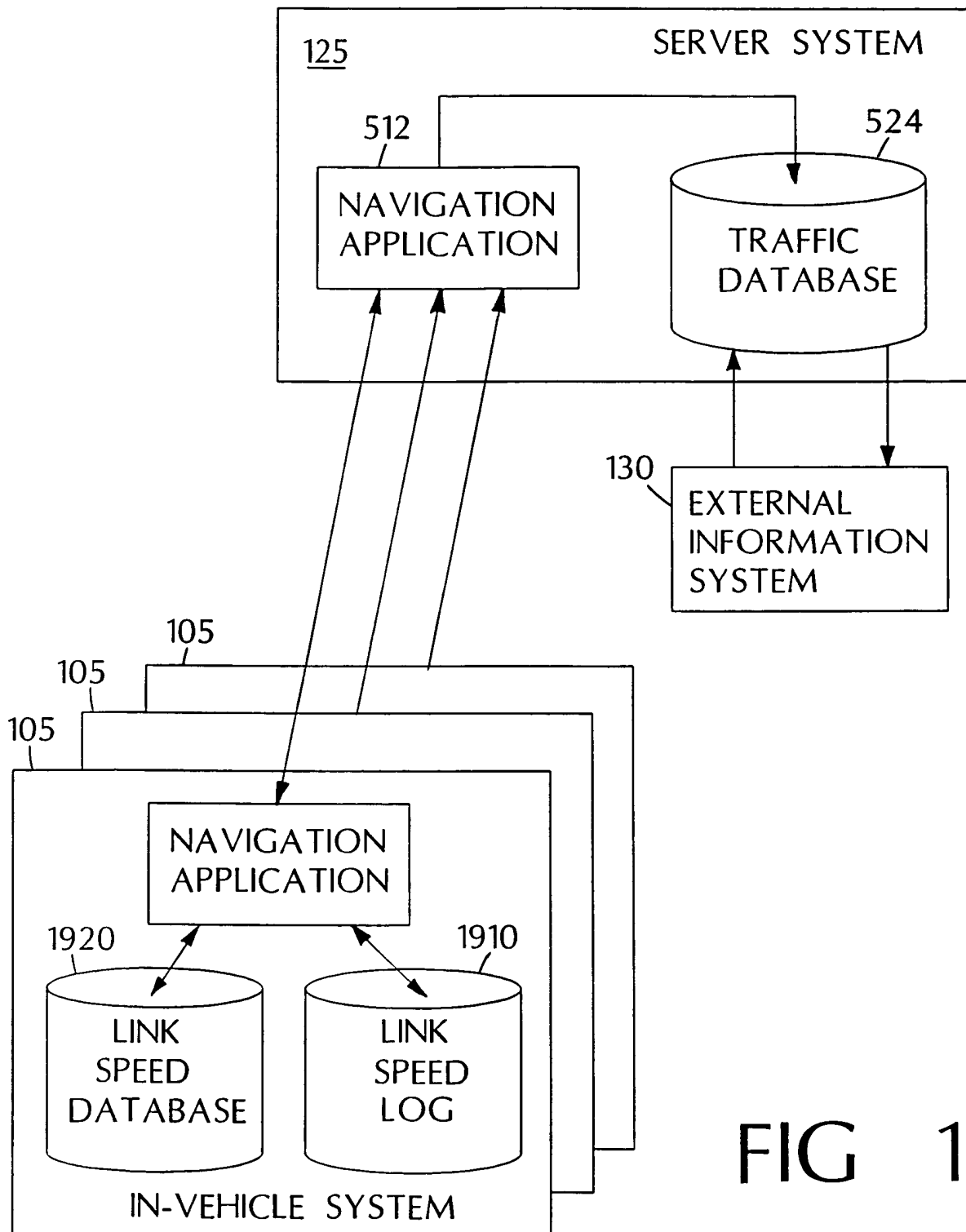


FIG 19

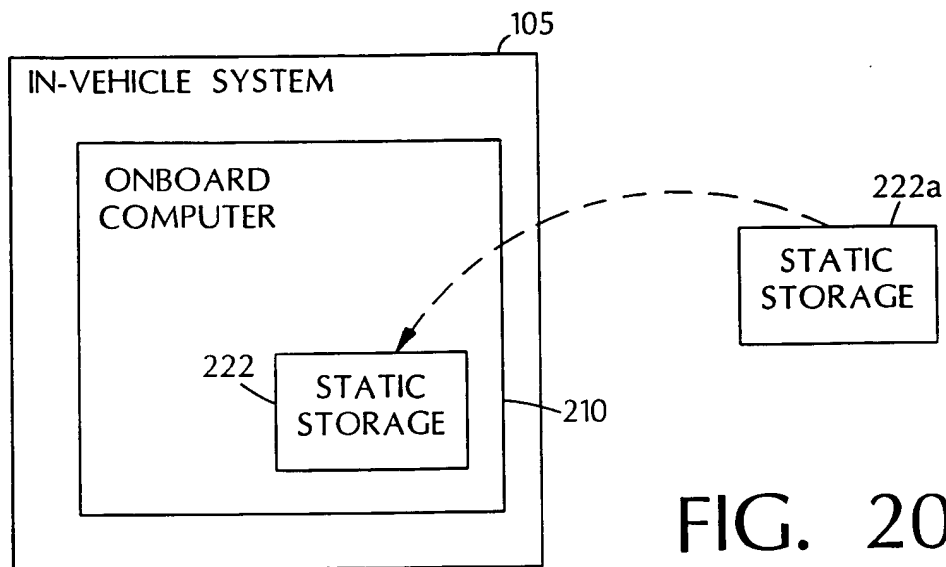


FIG. 20A

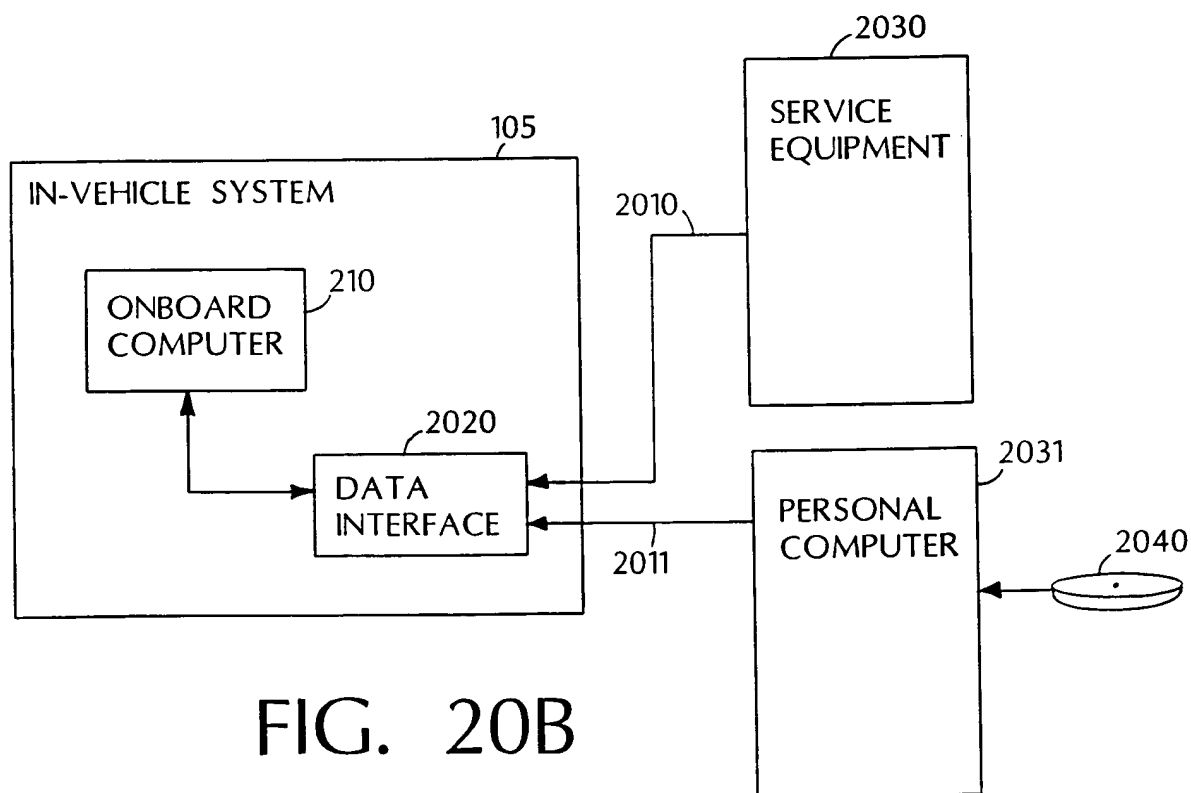


FIG. 20B

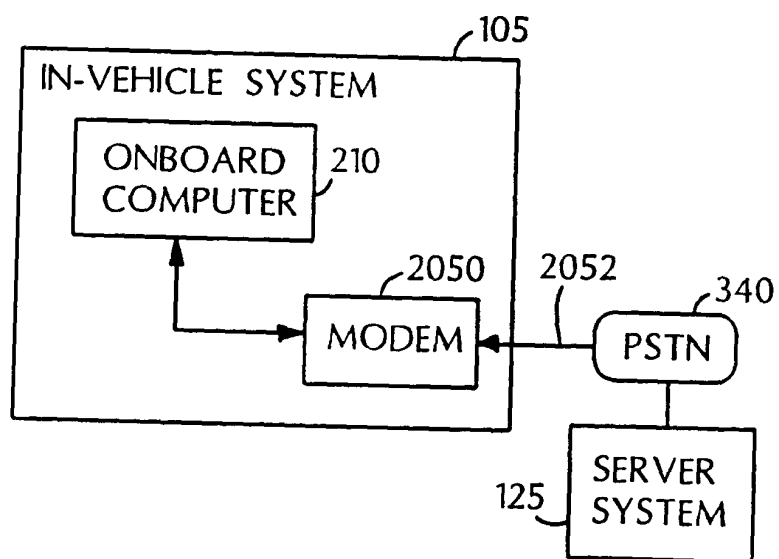


FIG. 20C

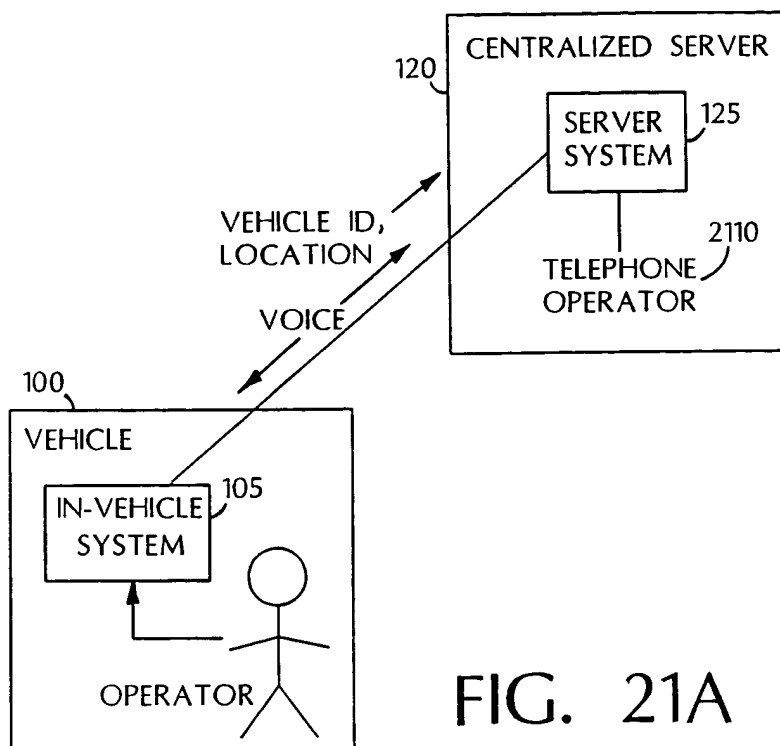


FIG. 21A

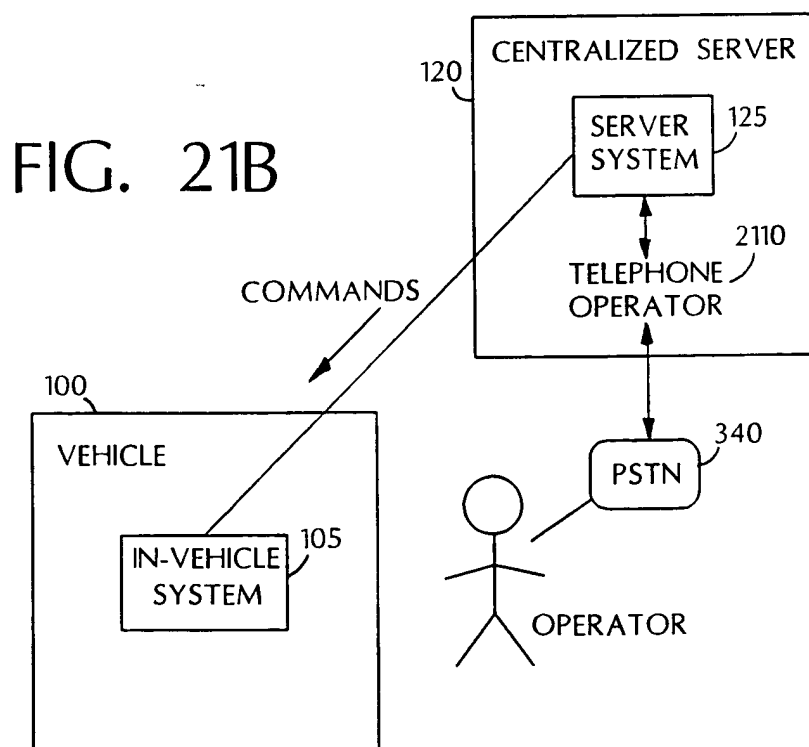


FIG. 21B



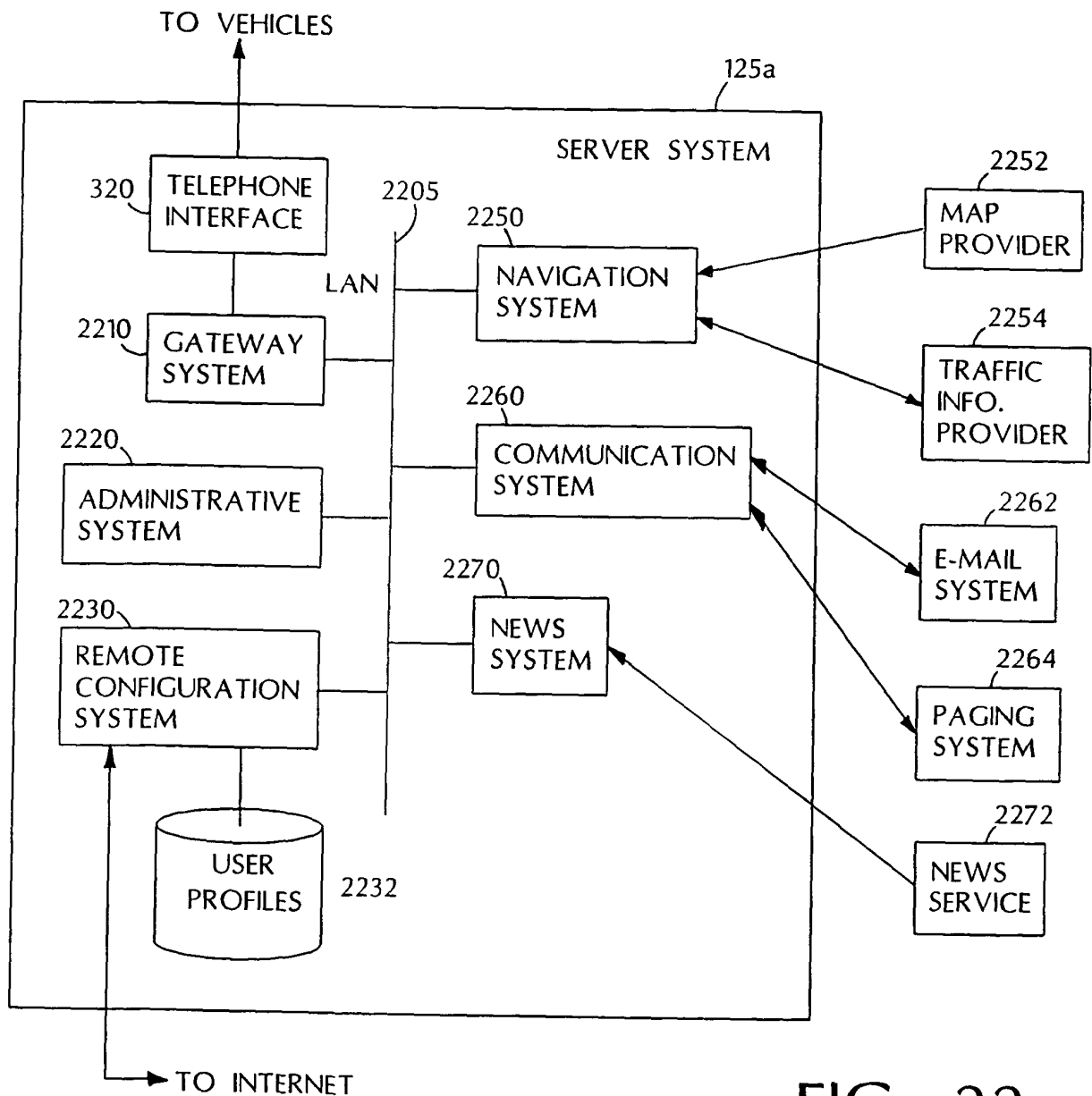


FIG. 22